Release A CDR RID Report

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Review SDPS/CSMS

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Priority 1

Section NA **Page** NA **Figure Table** NA

Category Name CSS Design/MSS Design **Actionee** ECS

Sub Category

Subject Lack of visibility into requirement allocations and development planning

Description of Problem or Suggestion:

PDR RID 181 first cited the following need: "In order to assess completeness and feasibility of CSMS design and schedule, more detail is required to describe the mapping of Level 4 requirements to COTS, custom code, etc. Included in this summary should be such information as when COTS extensions/enhancements are required, availability of COTS (with some level of confidence if not currently available), overall schedule showing how COTS, custom development, including scripts, 4 GL will appear and plan for integration of all components."
This information was not available in the 305-CD-003-001 CSMS Design Specification dated January, 1995, and was not addressed in the PDR CSMS 305-CD-003-002 Design Specification, March, 1995 and CDR CSS 305-CD-012-001 Design Specification, July, 1995 or CDR MSS 305-CD-013001 Design Specification, July 1995. The information is needed to complete the CDR detailed design for Release A.
Description: The following results are based on analysis of Release A CSMS Communications Subsystem Design Specification:

Due to the lack of traceability to specific functions of COTS products already selected and generic COTS not selected, over 30 % of the 200 L4 requirements analyzed to date could not be traced to design. This is due to the lack of detail in describing the COTS packages. Under the current situation the CSS cannot be tested and there is no way at this time to ascertain whether functionalities required by NASA have been satisfied by the design.
- It is difficult within the design to distinguish between COTS, custom, and glue code.
- The design document does not elaborate on the intended procedures to encapsulate/integrate COTS applications to produce the required CSMS functionality. Therefore it is difficult to ascertain how the various components will be integrated and tested. The following results are based on analysis of the Release A CSMS Management Subsystem Design Specification:
- Over 20 % of the 319 requirements allocated could not be traced to the design. Some of the problems relate to COTS products not selected and COTS products such as HP-Openview that are not described in sufficient detail. It is difficult to ascertain whether functionalities required by NASA have been satisfied by the design.

Originator's Recommendation

A detailed design document) needs to trace requirements to COTS functionality and elaborate on the intended procedures to encapsulate/integrate COTS applications to produce the required CSMS functionality. The following should be provided:
- A mapping of the requirements to the design or COTS products and provide a detailed traceability matrix to the lowest functional level (to include a paragraph in a vendor supplied manual) or provide an explanation as to why it is not necessary.
- A detailed description of each COTS product and how it relates to design..
- A detailed design be provided and a presentation be given by HAIS and Hewlett Packard that depicts in detail the software necessary to encapsulate OSF/DCE and HP-OODCE. In addition, how and what software is necessary to integrate the Distributed Computing and Management (HP-Openview) environments.

GSFC Response by: **GSFC Response Date**

HAIS Response by: Gary Forman **HAIS Schedule** 9/27/95

HAIS R. E. Gary Forman / Lou Swentek **HAIS Response Date** 10/25/95

Both the CSS Design Specification 305-CD-012-001 and the MSS Design Specification 305-CD-013-001, describe the methodology, procedures and design for encapsulation of COTS applications to support the desired CSS/MSS functionality. For example: the Proxy Agent provided by MSS is used as the management interface to all COTS within the ECS system, is described in Section 4.1.5.3 EcAgPrxy - DCE Proxy Agent CSC. The Proxy Agent is provided to support management of applications or devices which do not support standard ECS protocols, (specifically non-OODCE COTS packages). One of the strengths of this design is that every COTS package is encapsulated in the same manner with the MSS Proxy Agent, the COTS unique code is developed by the application developer, while the instrumentation and communication code is provided by MSS. Section 4.1.5.3 will be expanded to provide a more detailed definition of the encapsulation for COTS applications.

Similarly, CSS will expand its description of the methodology, procedures and design for encapsulation/application interfaces for using DCE and OODCE to provide the desired CSS functionality.

Reference: "It is difficult within the design to distinguish between COTS, custom, and glue code": The CSS/MSS Design Specifications provide a detailed mapping of objects to implementation for each component

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The CSS Design Specification (305-CD-012-001) uses Table 4.1-2 to identify each service implementation as using either COTS, custom or glue code. In this document unfortunately the table has erroneously been placed in section 4.2.1.1 instead of in section 4.1 (this will be corrected in the next release of this document). CSS will provide more detail in this table to help better identify the implementations as either COTS, Custom and/or Glue code.

In the MSS Design Specification (305-CD-013-001) for example, Table 4.1-1 identifies each component's implementation. To clearly identify which part of each object is implemented through COTS or custom the lower level paragraphs (i.e., 4.1.5.1 - 4.1.5.7 for Management Agent) have been provided to show the actual decomposition for code/COTS implementation. Further the CSS/MSS Object models identify each object as either COTS, Custom, or COTS plus Custom. CSS/MSS will review the current designation of implementation classes to ensure that the implementation method is identified for each object.

Reference: "over 30% of the 200 L4 requirements analyzed to date could not be traced to design": CSS agrees that its L4 trace (in Appdx. A) to design might be difficult to map to object classes. CSS has recently updated this trace mapping in RTM to correct this problem.
The ECS team had attempted to provide a detailed list of L4 requirements traced to design. MSS/CSS will review and update their current mapping to ensure that each level 4 requirement maps to a corresponding design element/object class. Requirements satisfied by COTS will be clearly linked by the requirements traces. Detailed comments received on DID-305 will be reviewed and the document updated accordingly.
Some requirements have been mapped to the database object model, with references to the Data Base Design Specification, where the lower level detail is provided (the DBMS section does not attempt to duplicate the DBDD in definition of the management database). This mapping will also be reviewed and references to the appropriate sections of the DBDD provided.

Reference: "The design document does not elaborate on the intended procedures to encapsulate/integrate COTS applications to produce the required CSMS functionality. Therefore it is difficult to ascertain how the various components will be integrated and tested": CSS/MSS will provide a description of the encapsulation methods for COTS applications. The methodology for encapsulation of OSF/DCE and HP-OODCE will be added to the CSS design specification.
305-CD-012-001, Section 4 describes each CSS service and the interface (API) that applications will use to employ each service. CSS has previously held a workshop to describe the methods required for application's developers to use to employ these services.

Integration efforts for HPOV, and related software to support the integration, will be added to the MSS Management Framework section of 305-CD-013-001.

The Release A Integration and Test Plan specifies in detail how CSMS functionality will be integrated and tested.

Status **Closed** **Date Closed** **3/4/96** **Sponsor** **Folts**

****** **Attachment if any** ******
